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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/428,468 | 10/28/1999 | SAID O. BELHAJ | BELHAJ5 | 4691 |

7590 03/16/2004

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| EXAMINER |
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CHOW, DOON Y

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| ART UNIT | PAPER NUMBER |
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2675

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DATE MAILED: 03/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/428,468

Applicant(s)

BELHAJ, SAID O.

Examiner

Dennis-Doon Chow

Art Unit

2675

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-6,8-10 and 14-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-6,8-10 and 14-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 8, 16-17 and 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Igari (JP404026226A).

Regarding to claims 1, 8, 16-17 and 21, Igari discloses a switch matrix and a method of scanning the switch matrix, comprising: a plurality of row conductors; a plurality of column conductors, each of row conductors and each of the column conductors are capable of being driven with a predetermined voltage level and are capable of being read therefrom a voltage level (see abstract); a plurality of witching elements connect to the row conductors and column conductors, wherein a total number of the switching elements exceeding a number obtained by multiplying together a number of row and column conductors (see Fig. 2); and means for detecting a closure of a first of the switching elements based on a presence of the predetermined column voltage level during monitoring of the row conductors, and means for detecting a closure of a second one of the switching elements based on a presence of the predetermined row voltage level during monitoring of the column conductors (see abstract). Igari further discloses some of he plurality of witching elements are implemented to allow current to flow bi-directionally therethrough (SW1, SW2, SW3 ...

Fig. 2), and others of the plurality of switching elements are restricted to allow current to flow only in one direction therethrough (SW10, SW11, SW12 ... Fig. 2).

Regarding to claim 22, Igari further discloses connecting three diodes in each column, but only one diode voltage drop is switchably connected between each row conductor and each column conductor (Fig. 2).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4-6, 9-10, 14-15, 18-20 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Igari in view of applicant's admitted prior art.

Regarding to Claims 4-6, 9-10, 14-15, 18-20 and 23, Igari discloses a switch matrix and a method of scanning the switch matrix, comprising: a plurality of row conductors; a plurality of column conductors, each of row conductors and each of the column conductors are capable of being driven with a predetermined voltage level and are capable of being read therefrom a voltage level (see abstract); a plurality of switching elements connect to the row conductors and column conductors, wherein a total number of the switching elements exceeding a number obtained by multiplying together a number of row and column conductors (see Fig. 2); and means for detecting a closure

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of a first of the switching elements based on a presence of the predetermined column voltage level during monitoring of the row conductors, and means for detecting a closure of a second one of the switching elements based on a presence of the predetermined row voltage level during monitoring of the column conductors (see abstract). Igari further discloses some of the plurality of switching elements are implemented to allow current to flow bi-directionally therethrough (SW1, SW2, SW3 ... Fig. 2), and others of the plurality of switching elements are restricted to allow current to flow only in one direction therethrough (SW10, SW11, SW12 ... Fig. 2).

Igari may not explicitly disclose the use of a momentary (temporary) and persistent switching elements in the switch matrix. However, the admitted prior art discloses that the momentary and persistent switching elements are conventional switching elements (see page 1 of the specification). Thus, it would have been obvious to one of ordinary skill in the art to use the conventional momentary (temporary) switching elements and persistent switching elements in Igari's switch matrix. This would have been obvious because Igari does not disclose using any specific switch element in the switch matrix.

Regarding to claim 24, Igari further discloses connecting three diodes in each column, but only one diode voltage drop is switchably connected between each row conductor and each column conductor (Fig. 2).

Response to Arguments

5. Applicant's arguments filed 3/8/04 have been fully considered but they are not persuasive.

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Applicant is correct that Igari teaches connecting three diodes in each column in Fig. 2. However, Igari further teaches only one of the three diode is switchably connected between each row conductor and each column conductor (see Fig. 2). Therefore, it clear that Igari teaches switchably connecting only one diode voltage drop between each row conductor and each column conductor.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis-Doon Chow whose telephone number is 703-305-4398. The examiner can normally be reached on 8:30-6:00, Alternate Monday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras can be reached on 703-305-9720. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

D. Chow
March 12, 2004


DENNIS-DOON CHOW
PRIMARY EXAMINER